Sequence 1: images in everyday life

** Sommaire des activités ETLV** :

ACTIVITY 1: images in everyday life

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**Objective**: to learn the standard vocabulary related to geometric optics used commonly in optical instruments.

In optics, an **image** is defined as the **collection of light rays** coming from an object. A **real image** is the collection of focus points actually made by converging rays. In other words, it is an image which is located in the **plane of convergence** for the light rays that originate from a given object. Examples of real images include an image on a **cinema screen** (the source being the projector), the image produced on a **detector** in the rear of a camera, and the image produced on an **eyeball** **retina** (the camera and eye focus light through an internal convex lens).

Real images can be produced by mirrors and **converging lenses**.

Real images may also be inspected by a second **lens** or lens system. This is the mechanism used by **telescopes, binoculars** and **light microscopes**. The objective lens gathers the light from the object and projects a **real image** within the structure of the optical instrument. A second lens or system of lenses, the **eyepiece**, then projects a second real image onto the **retina** of the eye.

**DOCUMENT 1: formation a real image**

Top: The formation of a real image using a lens.

Bottom: The formation of a real image using a mirror. In both diagrams, f is the **focal point**, O is the object, and I is the image. Solid blue lines indicate light rays. It can be seen that the image is formed by actual light rays and thus can form a visible image on a **screen** placed at the position of the image.



**Source: Wikimedia commons**

### Acquiring vocabulary:

Using the previous documents, find a translation for the following words:

|  |  |
| --- | --- |
| **English** | **French** |
| real image |  |
| plane of convergence |  |
| cinema screen |  |
| detector |  |
| eyeball retina |  |
| converging lens |  |
| binoculars |  |
| eyepiece |  |
| focal point |  |

Connaissances et capacités à maîtriser

Ce qu’il faut savoir faire :

|  |  |  |
| --- | --- | --- |
| **Compétences** | **Capacités à maîtriser** | **Où dans cette séquence ?** |
| **APP** | Utiliser du vocabulaire spécifique | Activité 1 |
| Lire et comprendre des documents scientifiques | Activité 1 |
| **COM** | S’exprimer à l’oral en utilisant le vocabulaire adapté | Activité 1  |